WHAT IS CLAIMED IS:

1. A spark plug comprising:

a tubular housing;

a central bar electrode supported by said tubular housing in said tubular housing with electrical insulation therebetween; and

a ground electrode extending from one end of said tubular housing;

a chip, arranged at an end surface of a base material which is at least one of said central bar electrode and said ground electrode, on a side of said one end of said tubular housing, for spark discharge through said central bar electrode and said ground electrode, said chip including a novel metal; and

a weld portion between said base material and said chip including first to n^{th} weld layers formed by materials of said chip and said base material by laser welding to fix said chip to said base material, wherein said first to n^{th} weld layers are successively arranged from a side of said base material in order of said first to n^{th} weld layers in a distance increasing direction from said base material which is substantially perpendicular to said end surface, each of said first to n^{th} weld layers has at least an overlap portion with a neighbor of said first to n^{th} weld layers, a sum of a maximum first sectional area of said first layer and second sectional areas of said second to n^{th} weld layers at said overlap portions is 1. 4 times a third sectional area of said chip, said first, second, and third sectional areas are along said end surface, and n is a natural number more

than one.

2. A spark plug as claimed in claim 1, wherein said m^{th} weld layer has a maximum fourth sectional area along said end surface which is greater than said second sectional area of said m^{th} weld layer at said overlap portion between said m^{th} and $(m-1)^{th}$ weld layer, $2 \leqq m \leqq n$, and m is a natural number.

3. A spark plug as claimed in claim 1, wherein said chip includes Ir of more than 50% by weight.

4. A spark plug comprising:

a tubular housing;

a central bar electrode supported by said tubular housing in said tubular housing with electrical insulation therebetween;

a ground electrode extending from one end of said tubular housing;

a stress releasing layer, arranged on a side of said one end of said tubular housing on an end surface of a base material which is at least one of said central bar electrode and said ground electrode;

a chip, being arranged on said stress releasing layer and including a novel metal, for spark discharge through said central bar electrode and said ground electrode; and

a weld portion formed between said base material and said chip with materials of said base material, said stress releasing layer, and said chip by laser welding to fix said chip to said base material,

wherein a linear expansion coefficient of said stress releasing layer is between those of said base material and said chip.

5. A spark plug as claimed in claim 4, wherein a thickness t of said stress releasing layer is equal to or greater than 0.2 mm and equal to or smaller than 0.6 mm and $\alpha \geqq (1.4 - t) / 2$ where α is a ratio of a maximum sectional area of said weld portion along said end surface to a sectional area of said chip along said end surface.

6. A spark plug as claimed in claim 4, wherein said chip includes Ir of more than 50% by weight.

7. A method of producing a spark plug including a tubular housing, a central bar electrode supported by said tubular housing in said tubular housing with electrical insulation therebetween, and a ground electrode extending from one end of said tubular housing, comprising the steps of:

providing a stress releasing layer on a side of said one end of said tubular housing on an end surface of a base material which is at least one of said central bar electrode and said ground electrode;

providing a chip including a novel metal for spark discharge on said stress releasing layer and having a linear expansion coefficient between those of said base material and said chip; and

fixing said chip to said base material by forming a weld layer at an interface portion of said base material, said stress releasing layer, and said chip.

8. A spark plug as claimed in claim 4, wherein said weld portion includes first and second ring shape layers, said first layer is arranged between a portion of said end surface of said base material and said stress releasing layer to fix said stress releasing layer to said base material, said second ring shape layer is arranged between said chip and said stress releasing layer to fix said chip to said stress releasing layer.

9. A spark plug comprising:

a tubular housing;

a central bar electrode supported by said tubular housing in said tubular housing with electrical insulation therebetween;

a ground electrode extending from one end of said tubular housing, at least one of said central bar electrode and said ground electrode servicing as a base material;

a weld portion on said base material; and

a chip on said weld portion, including a novel metal for spark discharge through said central bar electrode and said ground electrode, wherein a linear expansion coefficient of said weld portion is between those of said base material and said chip.

10. A spark plug as claimed in claim 4, wherein said weld portion is arranged around said stress releasing layer.